

CLAIMS

- 112 Sub Part 2
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1. A decorative cap and wheel fastener assembly for a vehicle wheel, comprising:
- a) a fastener insert body having threads formed thereon encircling the axis of said body;
 - b) said body including one section having an external surface with a polygonal cross-section encircling said axis;
 - c) said body further including a section having an external surface with a circular cylindrical cross-section encircling said axis; and
 - d) a cap including a wall segment having an internal surface with a polygonal cross-section;
 - e) the cross-sectional dimensions of said internal polygonal surface in said cap being at least as large as the cross-sectional dimensions of said external polygonal surface on said body;
 - f) said cap further including one wall segment having an internal surface with a circular cylindrical cross-section;
 - g) the cross-sectional dimensions of said internal cylindrical surface in said cap being less than the cross-sectional dimensions of said cylindrical surface on said body;
 - h) said insert body being press fit into said cap whereby an interference fit is established between said one external and internal circular cylindrical surfaces.

2. The cap and fastener assembly of Claim 1 further characterized in that:

- a) said external surfaces are coated;
- b) said coating is approximately 0.001 inches thick.

Sub a2 3. The cap and fastener assembly of Claim 1 further characterized in that:

a) the diameter of said internal cylindrical surface in said cap is 0.010 to 0.030 less than the diameter of said external cylindrical surface on said insert before said insert is press fit into said cup.

5 4. The cap and fastener assembly of Claim 2 further characterized in that:

a) said coating is chromium free.

sub
a3 } 5. The cap and fastener assembly of Claim 1 further characterized in that:

10 a) said interference fit is between 0.002 and 0.006 inches around the said external and internal circular cylindrical surfaces.

 6. The cap and fastener assembly of Claim 1 further characterized in that:

a) said internal polygonal surface in said cap slips easily over said external polygonal surface on said insert.

15 7. The cap and fastener assembly of Claim 1 further characterized in that:

a) said insert body includes another section having an external surface with a circular cylindrical cross-section, said other body section being separate from said one body section; and

20 b) said cap includes another wall segment having an internal surface with a circular cylindrical cross-section;

c) an interference fit also being established between said other external and internal circular cylindrical surfaces.

25 8. The cap and fastener assembly of Claim 1 further characterized in that:

a) said cap including a crimp segment; and

b) said insert body including an undercut which is engaged by said crimp segment.

9. The cap and fastener assembly of Claim 1 further characterized in that:

a) said one circular cylindrical surface on said insert body has an outside diameter of about 0.930 inches.

10. The cap and fastener assembly of Claim 1 further characterized in that:

a) a shoulder is formed adjacent said one circular cylindrical surface on said insert;

b) said cap having an annular edge which engages said shoulder.

11. A method of assembling a decorative cap and wheel nut or bolt insert comprising the steps of:

a) forming an insert with a section having a polygonal external cross-section axially displaced from a section having circular cylindrical external cross-section;

b) applying a plating and/or a coating to the insert so at least the exterior of said section having an external circular cylindrical section is plated and/or coated;

c) forming a decorative cap of sheet material with a segment leaving a polygonal cross-section and a segment having a circular cylindrical cross-section axially displaced from each other, the polygonal cross-section segment having internal dimensions greater than the corresponding external dimensions of said polygonal section on said insert and the circular cylindrical cross-section segment having internal dimensions less than the corresponding external dimensions of said circular cylindrical section on said insert; and

d) press fitting said insert into said cap so as to form an interference fit between the plated and/or coated circular cylindrical surfaces of said insert and the circular cylindrical surface of said cap.

12. The method of Claim 11 further characterized in that:

a) said insert is coated with a chromium free coating material.

13. The method of Claim 11 further characterized in that:

a) an interference fit of between 0.002 and 0.006 inches is formed between said circular cylindrical surfaces.

14. The method of Claim 13 further characterized by and including the step of:

a) crimping an edge of said cap under a mating undercut on said insert body.